EITVOX

It’s Not a New Miracle Drug …

… But It Could Be

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Let’s start with the assumption that you need to get involved in Process Improvement.

*It almost goes without saying that you can’t improve something if you don’t know what that something is that you’re trying to improve.*

**Conclusion # 1** – If you haven’t done so already, start by documenting and understanding what you’re doing now.
Assume you’ve described and improved your processes, then what?

Unless your process descriptions are clearly written, easy to follow, and available when needed, your documentation is just shelfware

Conclusion # 2 – Following process documentation should be as close as possible to following the process itself
Standard Approaches

to Process Documentation
Process Tools – The Usual Suspects

• Flow Charts / IDEFs
• Gantt Charts / PERT Charts
• Org Charts
• Process Descriptions / Procedures
• Checklists
• Specialized Proprietary Software
Let’s Assume We’ve Got the Process in a Flowchart – whether a High-Level chart or a more-detailed one

What good is it? Does it tell anyone **how** to perform the process?
Let’s Assume We’ve Got the Flow – in an IDEF representation

It certainly provides more details – but does it help a practitioner perform the process?
Let’s Assume We’ve Got a Schedule – in a Gantt (or PERT) Chart

Need
Develop Reqmts & Req
Procure
Receive, Accept Delivery
Config & Ship
Install, Test & Accept at Site
Release

What good is this?
Does it tell anyone **how** to perform the process?
And Assume We’ve Got An Organization – Hierarchy, Role Descriptions, etc.

What good is this? You can ‘follow the money’, know who’s whose boss, but it doesn’t tell you how to perform the process.
And Assume We’ve Got Documentation – Process Descriptions, Procedures, etc.

<table>
<thead>
<tr>
<th>DATE</th>
<th>DOCUMENT TYPE</th>
<th>DOCUMENT TITLE</th>
<th>OWNER</th>
</tr>
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<tr>
<td>6 Apr 2001</td>
<td>PD GD 001</td>
<td>Introduction to the SEPG</td>
<td></td>
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<tr>
<td>15 May 2000</td>
<td>PD GD 002</td>
<td>SEP Tailoring Guide</td>
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<tr>
<td>15 May 2000</td>
<td>RV GD 001</td>
<td>Review Meeting Guide</td>
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<td>3 Jan 2000</td>
<td>SW GD 002</td>
<td>Software Engineering Guide</td>
<td>SEPG</td>
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<tr>
<td>3 Jan 2000</td>
<td>SW GD 003</td>
<td>Qualification Test and Evaluation Guide</td>
<td>SWT</td>
</tr>
<tr>
<td>3 Jan 2000</td>
<td>SW GD 004</td>
<td>Customer Support Guide</td>
<td>SWS</td>
</tr>
<tr>
<td>3 Jan 2000</td>
<td>SW GD 007</td>
<td>Reuse Guide</td>
<td>SWE</td>
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<tr>
<td>3 Jan 2000</td>
<td>SW GD 011</td>
<td>Software Metrics Guide</td>
<td></td>
</tr>
<tr>
<td>3 Jan 2000</td>
<td>SW GD 015</td>
<td>Deficiency Reports (DR) Guide</td>
<td></td>
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<td>29 Jan 2001</td>
<td>SW GD 018</td>
<td>Turn-in and Release Guide</td>
<td>SCM</td>
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<td>3 Jan 2000</td>
<td>SW GD 019</td>
<td>Software Cost Estimating Guide</td>
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<tr>
<td>3 Jan 2000</td>
<td>SW GD 021</td>
<td>Save and Off-Site Procedures for Computer Mainframe Systems SWC</td>
<td></td>
</tr>
</tbody>
</table>

The web-page and documents describe how to perform individual activities, but they usually don’t tell you what the process is.
When We Document Processes, We Tend to Forget Some Fundamental Questions

• Why are we doing this?
  What are the reasons for documenting processes?

• Who’s going to use this?
  What kinds of people want/need documentation?

• What will they use it for?
  What purpose should the documentation serve?

• How will they use it?
  What will make the material really usable?
Here Are Some Fundamental Answers

*The Questions*
- Why are we doing this?
- Who’s going to use this?
- What will they use it for?
- How will they use it?

Three main audiences for process documentation
- Practitioners – as reminders of what needs to be done, what is needed to do it, who does it, and how it should be done
- Newcomers – as training devices re what they do and where it fits in the overall operation
- Managers – as an overview of how the organization operates, where problems can occur, and what the impact of a problem is

And all three are involved in process improvement activities

A fourth audience is the external inspector – IG, GAO, appraiser (CMM, ISO, etc.), or even a customer – who evaluates the operation against some specific set of criteria.
What’s Really Needed is Something that Will Help Understand the Process

- What to Do
- How to Do It
- When to Do It
- Who’s to Do It
- What’s Needed to Do It

and maybe even

- Where to Do It
- Why It’s Being Done
So finally … what’s an EITVOX?
Start with the Flow Chart

For each step, fill out additional attributes that describe the task more fully for both manager and practitioner

- What does the step do
- When is it done
- What’s needed to do it
- How is it supposed to be done
- What’s next
<table>
<thead>
<tr>
<th>E</th>
<th>V</th>
<th>X</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entry Criteria</td>
<td>Verification</td>
<td>Exit Criteria</td>
</tr>
<tr>
<td>I</td>
<td>T</td>
<td>O</td>
</tr>
<tr>
<td>Inputs + Sources &amp; Specs</td>
<td>Tasks</td>
<td>Outputs + Clients &amp; Specs</td>
</tr>
<tr>
<td>Resources: Tools</td>
<td>Resources: Skills</td>
<td>Other Stakeholders</td>
</tr>
</tbody>
</table>

Extended EITVOX or EEITVOX chart

Header/ID Information:
Name of current step, previous and next steps, name of next level up, reference to CMM or other standard.
<table>
<thead>
<tr>
<th>Previous step</th>
<th>Verification/Measures</th>
<th>Next step</th>
</tr>
</thead>
<tbody>
<tr>
<td>Requirements Process</td>
<td></td>
<td>1.2 Procurement</td>
</tr>
<tr>
<td><strong>Entry Criteria</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A requirements for a new item of HW or COTS SW is received (new type, additional, replacement)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Inputs &amp; suppliers/specs</strong></td>
<td><strong>Tasks</strong></td>
<td><strong>Outputs &amp; customers/specs</strong></td>
</tr>
<tr>
<td>• Evaluations from System Engineering phase</td>
<td>• Generate acquisition justification</td>
<td>• rid - Logistics</td>
</tr>
<tr>
<td>• CCB approved requirement</td>
<td>• Establish maintenance &amp; sparing</td>
<td>• updated site survey - (form v. 4 dated 4/98)</td>
</tr>
<tr>
<td>• Architecture, performance and “ilities” requirements</td>
<td>• Establish MOAs</td>
<td>• MOA - PM, CINC</td>
</tr>
<tr>
<td>• Existing site survey</td>
<td>• Generate rid</td>
<td>• ILSP - PM (270-50-9 Enclosure, Circular 400-120-1)</td>
</tr>
<tr>
<td></td>
<td>• Perform site survey</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Validate site survey</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Determine site gaps</td>
<td></td>
</tr>
<tr>
<td><strong>Roles, Responsibilities, Skills</strong></td>
<td><strong>Tools, References, Notes</strong></td>
<td><strong>Other stakeholders</strong></td>
</tr>
<tr>
<td></td>
<td>Policy 270-59-9</td>
<td>ILSP - J4, CINCs</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Site survey - PM, site POC</td>
</tr>
</tbody>
</table>

**In a completed EITVOX, these blocks would each have three columns, with hyperlinks to documents**
**Expanded ‘Structured’ Matrix**

<table>
<thead>
<tr>
<th>Project/Process</th>
<th>Phase/Activity</th>
<th>Actv Code Lvl/Nr</th>
<th>PA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purpose</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Summary</td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Previous step</th>
<th>Verification/Measures</th>
<th>Next step</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entry Criteria</td>
<td></td>
<td>eXit Criteria</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Inputs</th>
<th>Suppliers</th>
<th>Specs</th>
<th>Tasks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Notes, References, Tools</th>
<th>Roles, Responsibilities, Skills</th>
<th>Other stakeholders</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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# How Deep Do We Delve?

1. As a minimum, perform this definition for each major block of the high-level flow chart

<table>
<thead>
<tr>
<th>E</th>
<th>V</th>
<th>X</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entry Criteria</td>
<td>Verification</td>
<td>Exit Criteria</td>
</tr>
</tbody>
</table>

## Resources: Tools

## Other Stakeholders

## Inputs

+ Sources & Specs

## Resources: Skills

## Outputs

+ Clients & Specs

### Header/ID Information

Name of current step, previous and next steps, name of next level up, reference to CMM or other standard

2. Typically, perform this definition for each subtask identified in the Task block

3. Optionally, perform this definition for each subtask identified in their Task blocks
EITVOXes as Hierarchies

Process Step 1

- Entry Criteria
- Verification
- Exit Criteria
- Inputs
- Tasks
- Outputs
- Resources: Tools
- Other Stakeholders

Process Step 2

- Entry Criteria
- Verification
- Exit Criteria
- Inputs
- Tasks
- Outputs
- Resources: Tools
- Other Stakeholders

Process Step 3

- Entry Criteria
- Verification
- Exit Criteria
- Inputs
- Tasks
- Outputs
- Resources: Tools
- Other Stakeholders
EITVOXes as Flowcharts

Provide visual reference for overall process operation
Process Definition
It took several iterations to get agreement on the high-level grouping.

Once that was done, individual flowcharts and their corresponding EITVOXes could be developed.
Logistics: Hardware Acquisition & Fielding

1: Develop Requirements & Requisition

- Develop Requirements & Requisition
- Procure
- Receive, Accept at HQ
- Ship & Receive at Site
- Install, Test & Accept at Site
- Operations

Smaller Items
- Generate acquisition justification
- Establish maintenance & sparing
- Establish MOA
- Generate r.i.d.

Larger Items
- Perform site survey
- Validate site survey
- Determine “gaps”
- Generate r.i.d.
- Establish MOA

- Computing equipment
- Networking
- Security
- Environmentals (space & configuration, floor loading, power/HVAC)
Logistics: Hardware Acquisition & Fielding

2: Procure

- Develop Requirements & Requisition
- Procure
- Receive, Accept at HQ
- Ship & Receive at Site
- Install, Test & Accept at Site
- Operations

1. Issue PR / PO
2. Receive at warehouse
3. Validate BOL against components (large)
   Validate BOL against P.O.
3. Enter into DPAS
Logistics: Hardware Acquisition & Fielding

3: Receive, Accept at HQ

1. Develop Requirements & Requisition
2. Procure
3. Receive, Accept at HQ
4. Ship & Receive at Site
5. Install, Test & Accept at Site
6. Operations

2. Obtain material from warehouse
3. Unpack part & verify lg. components (PCA)
4. Unpack fully & verify completeness (PCA)
5. Assemble configuration
6. Verify operation in Lab
Logistics: Hardware Acquisition & Fielding

4: Ship & Receive at Site

1. Develop Requirements & Requisition
2. Procure
3. Receive, Accept at HQ
4. Ship & Receive at Site
5. Install, Test & Accept at Site
6. Operations

3. Generate packaging list (1149 & 3161)
4. Deliver to warehouse
5. Package shipment
6. Transport hardware
7. Obtain material in field (POC)
8. Verify completeness (PCA)

3. Confirm site survey
4. Re-validate “gaps”
5. Select required SW & doc for installation
6. Package SW and doc shipment
7. Transport SW media

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Logistics: Hardware Acquisition & Fielding

5: Install, Test & Accept at Site

1. Develop Requirements & Requisition
2. Procure
3. Receive, Accept at HQ
4. Ship & Receive at Site
5. Install, Test & Accept at Site
6. Operations

- Install
- Verify Installation
- Verify Operation
- Update ILSP w/ actuals
- Acceptance (POC)
- Update DPAS, confirm to POC

Site Equipped & Documented

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Using EITVOXes

EXPDNT – the EITVOX Extended

Process Definition and Navigation Tool
Logistics: Hardware Acquisition & Fielding
Top View

- Develop Requirements & Requisition
- Procure
- Receive, Accept at HQ
- Ship & Receive at Site
- Install, Test & Accept at Site

Operations
# Logistics: Hardware Acquisition EITVOX

## High-Level View

<table>
<thead>
<tr>
<th>Project / Process</th>
<th>Phase/Activity</th>
<th>Hardware Acquisition</th>
<th>Activity Code Lvl/Nr</th>
</tr>
</thead>
<tbody>
<tr>
<td>Logistics - 1</td>
<td></td>
<td></td>
<td>1        PA</td>
</tr>
</tbody>
</table>

| Purpose / Value | Obtain and deploy hardware at all sites |

<table>
<thead>
<tr>
<th>Previous Step(s)</th>
<th>Process Verification &amp; Measures</th>
<th>Next Step(s)</th>
<th>Exit Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Requirements Process</td>
<td></td>
<td>Operations / Enterprise Management</td>
<td>Hardware is installed and accepted at destination location</td>
</tr>
</tbody>
</table>

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</tr>
</tbody>
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<table>
<thead>
<tr>
<th>Tasks</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Develop Acquisition Requirements and Requisition</td>
</tr>
<tr>
<td>• Purchase, Receive, Document</td>
</tr>
<tr>
<td>• Receive, Accept at HQ</td>
</tr>
<tr>
<td>• Package, Ship and Receive at Site</td>
</tr>
<tr>
<td>• Install, Accept, Document at Site</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Outputs, Sources, Specs</th>
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</thead>
<tbody>
<tr>
<td>• Documented Requirements</td>
</tr>
<tr>
<td>• Documented Purchase &amp; Receipt</td>
</tr>
<tr>
<td>• Installed Hardware</td>
</tr>
<tr>
<td>• Documented Acceptance</td>
</tr>
<tr>
<td>• Updated Property Tracking System</td>
</tr>
<tr>
<td>• Update Site Survey</td>
</tr>
</tbody>
</table>

<table>
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<th>References, Tools, Procedures</th>
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<td>Policy 270-59-9</td>
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| Skills & Training |

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<td>• ILS - J4, CINCs</td>
</tr>
<tr>
<td>• Site survey - PM, site POC</td>
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</tbody>
</table>
Miscellaneous Characteristics

• Dynamic DB-based version
  – pages formatted on-the-fly
  – DB platform is MS Access
  – back-end JSP based on industry freebies
  – front-end is standard browser

• Aspects of database
  – No replication of activity names
  – Hyperlinked documents in all fields
  – Parameters include
    • X-Y position of boxes – currently set to 5 across, 3 down
    • Box color – current range is 16
    • Font color – current range is 2 (black or white)
  – Box shape currently limited to rectangular
    • Scalable Vector Graphics (SVG) under consideration